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Fisherman knowledge of Mekong giant catfish at the Kaeng Krachan Reservoir, Thailand

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ABSTRACT

A lot of hatchery-reared juvenile Mekong giant catfish have been released into the Kaeng Krachan reservoir as fishery resources until 2011. Local knowledge of the catfish was assessed from fishermen at the reservoir in May 2011. The fisheries cooperative strictly regulate the total number of the catfish captured by all fishermen in a year for the stock management, and the total number in a year is related to the number captured in the previous year. In 2010 only 10 catfish could be harvested. A fisherman used a gill net with 50 cm mesh size to capture the Mekong giant catfish. The experience of the fisherman suggests that the catfish might stay at deeper areas in the reservoir, and could be harvested around such deeper areas. One of the Mekong giant catfish captured in this reservoir in 2010 was around 2 m in length and 117 kg in weight. These suggest that the Mekong giant catfish can adapt themselves to grow up in a reservoir such as the Kaeng Krachan reservoir.

Keywords: **MCTP, *Pangasianodon gigas*, Empirical knowledge**

INTRODUCTION

In Southeast Asia, freshwater species are harvested by fishermen in a variety of water bodies, including lakes, reservoirs, canals, wetlands, and rivers. Freshwater animals, especially fish, play a major role as the principal source of animal protein for local people (Bhukaswan 1980, Pawaputanon 2007).

In the Mekong River basin, one of the largest freshwater fish in the world, the Mekong giant catfish *Pangasianodon gigas*, has been popular food for the local people, and is one of the most important and high-value fishery species (Akagi *et al*. 1996). The catfish is an herbivorous and migratory species that is endemic to the Mekong River basin, and measuring up to 3 m in length and weighing in excess of 300 kg (Akagi *et al*. 1996, Rainboth 1996, Hogan 2002, Mattson *et al*. 2002, Hogan 2004). Historically, this species was distributed throughout the basin from China to Vietnam, but it now appears to be limited to the Mekong River and its tributaries in Thailand, Lao People's Democratic Republic (Lao PDR), and Cambodia (Meynell 2003, Hogan 2004). The number of wild catfish harvested in the Mekong River has declined due to development of the river and over-fishing (Poulsen and Viravong 2002, Hogan 2004). At present, the catfish is listed in the Convention on International Trade in Endangered Species (CITES) Appendix I and on the International Union for the Conservation of Nature and Natural Resources (IUCN) Red List of threatened species as a Critically Endangered Species.

In Thailand, artificial propagation techniques for the catfish (F1) were developed by the Department of Fisheries, Thailand in 1983 (Mattson *et al*. 2002). The hatchery-reared juveniles and young immature catfish have been released by the government of Thailand (Meynell 2003) into rivers, lakes, and reservoirs in Thailand as fishery resources for local people. One of these waters is the Kaeng Krachan reservoir in Phetchaburi Province, Thailand (Figs. 1 and 2). Hatchery-reared catfish have been released into this reservoir for approximately 20 years until 2011. The released catfish have grown up in the reservoir and many catfish have been captured by local fishermen (Fig. 3).

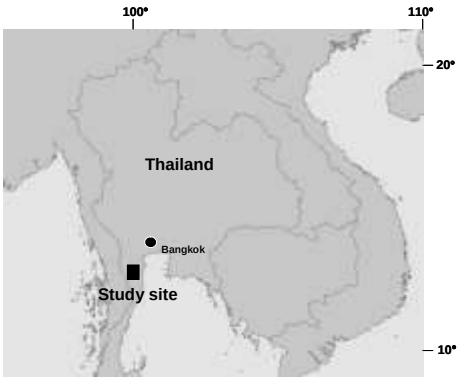

Figure 1. Location of the Kaeng Krachan reservoir, Phetchaburi Province, Thailand.

For the effective fishery management, it is one of the quite important studies to assess

movement patterns of the Mekong giant catfish. The tracking and monitoring studies on the catfish using acoustic telemetry have been conducted in a reservoir, the Mae Peum reservoir, Phayao Province, and the Mekong River, as requested by the Department of Fisheries of Thailand. This study was performed within the context of the Mekong giant catfish tracking project (MCTP) to conserve and manage this species (Arai *et al*. 2005). In this project, the local knowledge of the catfish movement in relation to the catfish fishery was assessed. In this paper, we report the local knowledge of a fisherman interviewed at the Kaeng Krachan reservoir in May 2011.

a)

b)

Figure 2. Photos of the Kaeng Krachan reservoir. a) A lot of small islands at the reservoir. b) Deeper areas of the reservoir near the dam on the right side.

MATERIALS AND METHODS

The knowledge of the Mekong giant catfish, especially the catfish fishery, at the Kaeng Krachan resevoir, Phetchaburi Province, Thailand (Fig. 1) was obtained from interview with a leader of the local fishermen in May 2011. The area of the reservoir is around 46 km^2. The inlet river of the reservoir, the Phetchaburi river, is connected to Myanmar.

RESULTS AND DISCUSSION

The fishery cooperative at the Kaeng Krachan reservoir regulates the total number of the Mekong giant catfish captured at the reservoir in a year. The total number is related to the number captured in the previous year, and is fixed under the cooperative agreement. In 2010 fishermen belonging to the cooperative were able to capture only a total of 10 catfish. Catfish of approximately 2 m long are normally harvested, and in 2010 one of the catfish harvested was around 2 m in length and 117 kg in weight. In the reservoir, the fisherman used a gill net (mesh size: 50 cm) to capture the Mekong giant catfish. The gill net of similar mesh-size was also used (5 cm to 60 cm) for the catfish fishery at the Sirikit dam reservoir, Uttaradit Province, Northern Thailand, where the area is approximately 237 km^2, and a number of hatchery-reared catfish have been released (Mitamura *et al*. 2006). The leader of the fishermen at the Kaeng Krachan reservoir suggested that the catfish could be harvested around deep areas close to the dam of the reservoir. In the Sirikit dam reservoir as well, an old river channel which is relatively deep may be a better habitat for the Mekong giant catfish, and the catfish are captured in deep areas (Mitamura *et al*. 2006). Our previous study on habitat use using acoustic telemetry at a reservoir demonstrated that the catfish appeared to favor deep areas (Mitamura *et al.* 2005).

The leader gave the information that stomach content of the catfish harvested at the Kaeng Krachan reservoir was primarily algae, which are distributed around deeper areas with colder water. This is supported by the knowledge that the wild catfish may feed on algae at the Mekong River (Akagi *et al.* 1996).

Figure 3. Photo of the Mekong giant catfish captured at the Kaeng Krachan reservoir. Three catfish were on the back of a pickup.

The catfish harvested were sold for food to local people. The price of the catfish was 80 to 120 Baht / kg compared to 120 Baht / kg at the Sirikit dam reservoir in 2007. This price is relatively expensive, suggesting that the catfish is a valuable fishery resource in Thailand.

Figure 4. Photo of a Mekong giant catfish meal at a restaurant near the Kaeng Krachan reservoir. It is unknown where the catfish was captured.

CONCLUSION

The Mekong giant catfish have grown to approximately 2 m in length in the Kaeng Krachan reservoir and are fishery resources around the reservoir. The knowledge of fishermen suggested that the catfish might spend their life and feed on algae around deeper areas. This is similar to the knowledge at another reservoir, the Sirikit dam reservoir.

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